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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/673,719

09/29/2003

Michael Z. Hu

1142.1

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7590

11/17/2006

UT-Battelle, LLC

Office of Intellectual Property

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EXAMINER

NOGUEROLA, ALEXANDER STEPHAN

ART UNIT

PAPER NUMBER

1753

DATE MAILED: 11/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/673,719

Applicant(s)

HU ET AL.

Examiner

ALEX NOGUEROLA

Art Unit

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 1-8 and 13-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 9 and 10 is/are rejected.
- 7) ☒ Claim(s) 11 and 12 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 01/13/2004.

- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-7, drawn to a method for producing fibers, classified in class 204, subclass 334.
 - III. Claim 8, drawn to an inorganic fibrous structure, classified in class 428, subclass 357.
 - III. Claims 9-18, drawn to a solid monolithic material comprising aligned uniform fibrils, classified in class 204, subclass 469; or class 502, subclass 4; or class 210, subclass 263; or class 204, subclass 280.

The inventions are distinct, each from the other because of the following reasons:

a) Inventions Group I and Group II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the inorganic fibrous structure

Art Unit: 1753

of Group II can be made without using an electric field, such as disclosed by the process of Tennent et al. (US 6,099,960). See the abstract and Figure 9.

b) Inventions Group I and III are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the fibers of claim 9 can be made before being introduced in to the media rather than being grown in-situ in the media as required by step (c) of claim 1 or the solid monolithic material can be made by a process that does not use an electric field, such as that disclosed by Kinloch et al. (US 2006/0133982 A1). See the abstract.

c) Inventions Group II and Group III are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the invention of Group III does not require the fibers to be inorganic or to have length-to-diameter ratio of greater than 100:1. The subcombination has separate utility such as to form a (nano)fibrous mat or yarn.

The examiner has required restriction between combination and subcombination inventions. Where applicant elects a subcombination, and claims thereto are subsequently found allowable, any claim(s) depending from or otherwise requiring all the limitations of the allowable subcombination will be examined for patentability in accordance with 37 CFR 1.104. See MPEP § 821.04(a). Applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.

2. This application contains claims directed to the following patentably distinct species: an electrophoresis media comprising the solid monolithic material of claim 9, a catalyst comprising the solid monolithic material of claim 9, an ion exchange resin comprising the solid monolithic material of claim 9, and an electronic device (wire electrode – top of page 14 of the specification) comprising the solid monolithic material of claim 9. The species are independent or distinct because have different

Art Unit: 1753

classifications (respectively, class 204, subclass 469; class 502, subclass 4; class 210, subclass 263; and class 204, subclass 280).

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claim 9 is generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

3. During a telephone conversation with Joseph Marasco on November 03, 2006 a provisional election was made with traverse to prosecute the invention of Group III and within this invention the electrophoretic species, claims 9-12. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-8, 10, and 13-18

Art Unit: 1753

are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 9, 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Wehrspohn et al. (US 2006/0119015) ("Wehrspohn").

Addressing claim 9, Wehrspohn discloses a solid monolithic material comprising aligned uniform fibrils ranging in diameter from micrometer-sized to nanometer-sized (abstract; paragraphs [0037], [0039], [0070], [0072], and [0073]) having enhanced anisotropic properties including electrical properties (As a first matter, "enhanced" is indefinite since there are no reference property values in the claim to gauge whether a particular property has been enhanced. In any event, paragraph [0067] discloses deliberately adjusting the properties of the material such as by creating regions of differing material composition or amorphous and crystalline regions that affect electrical

Art Unit: 1753

properties of the material. Also, paragraphs [0047] and [0069] imply mechanical toughening since the outer surface of the fibrils are mechanically stable and "[t]he resulting hollow fiber arrays after the removal of the template material are characterized in the hollow fibres are linked together by reproductions of the connecting pores. These linkages stabilize the fiber array and are particularly advantageous in the case of free-standing hollow fiber membranes."), said monolithic material further having tailored capillary-like channels ranging in diameter from micrometer-sized to nanometer-sized thereby increasing the volumetric capacity of said monolithic material (this limitation is implied since the fibrils range in diameter from micrometer-sized to nanometer-sized and are hollow. See paragraphs [0047] and [0038]. As for the capillary-like channels being tailored, this is implied since the aspect ratio maybe 1 to 20,000; the wall thickness can range from 1 nm to 1 μ m, paragraphs [0036], [0039]; and the fibrils can have a cylindrical or other cross section – [0029]) and said monolithic material having a surface chemistry capable of being tailored for various ligand grafting (implied since the fibers can be functionalized ([0028]), the wetting and adhesion properties can be modified as desired ([0029]), a wide variety of materials can be used including biological polymers, such as modified cellulose and polypeptides – [0054] – [0059])).

Addressing claim 10, for the additional limitation of this claim see Example 14 ([0114]-[0116]), which discloses coating the fibrils with an external Pd layer.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 9, 10 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention:

Claim 9: in what way or to what degree have the listed properties been "enhanced"? That is what are the reference values for the enhanced properties.

Allowable Subject Matter

8. Claims 11 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 1753

9. The following is a statement of reasons for the indication of allowable subject matter:

a) Claim 11 requires the monolithic material to have "anisotropic properties in regards to retention, interaction and separation of biomolecules." Although Wehrspohn discloses that the monolithic material may be used for capillary electrophoresis ([0073]) Wehrspohn does not mention letting the monolithic material have the anisotropic properties listed in the claim.

b) Claim 12 depends from allowable claim 11.

10. Note that dependent claims will have the deficiencies of base and intervening claims.

Drawings

11. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because photographs 3b-3d are not clear. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are

Art Unit: 1753

required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEX NOGUEROLA whose telephone number is (571) 272-1343. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NAM NGUYEN can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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Primary Examiner
AU 1753